

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently amended) Handsfree system for use in a vehicle comprising:
a microphone array with at least two microphones and a signal processing means
~~characterized in that~~where the signal processing means comprises a superdirective
beamformer with fixed superdirective filters;
where the superdirective beamformer is a regularized superdirective beamformer
using a finite regularization parameter μ that is frequency dependent.
2. Cancelled
3. Cancelled
4. (Previously Presented) Handsfree system according to claim 1 where each
superdirective filter results from an iterative design based on a predetermined maximum
susceptibility.
5. (Previously presented) Handsfree system according to claim 1 where each
superdirective filter comprises a filter in the time domain.
6. (Previously presented) Handsfree system according to claim 1 where the signal
processing means further comprises at least one inverse filter for adjusting a microphone
transfer function.
7. (Previously presented) Handsfree system according to claim 6 where the at least one
inverse filter comprises a warped inverse filter.
8. (Previously presented) Handsfree system according to claim 6 where each inverse
filter comprises an approximate inverse of a non-minimum phase filter.

9. (Previously presented) Handsfree system according to claim 6 where each inverse filter is combined with a superdirective filter of the beamformer.
10. (Previously presented) Handsfree system according to claim 1 where the beamformer comprises the structure of a generalized sidelobe canceller (GSC).
11. (Previously presented) Handsfree system according to claim 1 where the beamformer comprises a minimum variance distortionless response (MVDR) beamformer.
12. (Previously presented) Handsfree system according to claim 1 where the microphone array comprises at least two microphones arranged in an endfire orientation with respect to a first position.
13. (Currently amended) Handsfree system according to claim 12 where the microphone array comprises at least two microphones arranged in endfire ~~position~~ orientation with respect to a second position.
- ~~14.~~ (Currently amended) Handsfree system according to claim 13 where the at least two microphones in the first endfire orientation and the at least two microphones in the second endfire orientation comprise a microphone in common.
- ~~15.~~ (Currently amended) Handsfree system according to claim 1 where the microphone arrays comprises at least two subarrays.
- ~~16.~~ (Currently amended) Handsfree system according to claim ~~15~~ where the at least two subarrays comprise at ~~least one~~ least one microphone in common.
- ~~17.~~ (Currently amended) Handsfree system according to claim 1 further comprising a frame where each microphone of the microphone array is arranged in a predetermined position in or on the frame.
- ~~18.~~ (Currently amended) Handsfree system according to claim ~~17~~ where the predetermined position comprises a fixed position in or on the frame.

2019. (Currently amended) Handsfree system according to claim 1 where at least one microphone comprises a directional microphone.

2120. (Currently amended) Handsfree system according to claim 2019 where the directional microphone comprises a directional microphone with a cardioid characteristic.

2221. (Currently amended) Handsfree system according to claim 2019 where the directional microphone comprises a differential microphone.

2322. (Currently amended) Handsfree system according to claim 1 comprising a vehicle coupled to the microphone and the beamformer.

23. (New) Handsfree system for use in a vehicle comprising:
a microphone array with at least two microphones and a superdirective beamformer having fixed superdirective filters;
where the superdirective beamformers are configured with a predetermined susceptibility that is based on a relative error of the microphone array.

24. (New) Handsfree system according to claim 23 where the relative error of the microphone array is a sum of mean square error of transfer properties of each microphone in the microphone array and a gaussian error with zero mean of microphone positions.

25. (New) Handsfree system according to claim 23 where at least two microphones in the microphone array are arranged in an endfire orientation with respect to a first position.

26. (New) Handsfree system according to claim 25 where at least two microphones in the microphone array are arranged in an endfire orientation with respect to a second position.

27. (New) Handsfree system according to claim 23 where at least one microphone comprises a directional microphone.

28. (New) Handsfree system according to claim 27 where the directional microphone comprises a directional microphone with a cardio characteristic.

Electronic Deposit Date: May 19, 2008

Application No.: 10/563,072

Our Case No.: 11336/1238 (P03036US)

29. (New) Handfree system according to claim 27 where the directional microphone comprises a differential microphone.